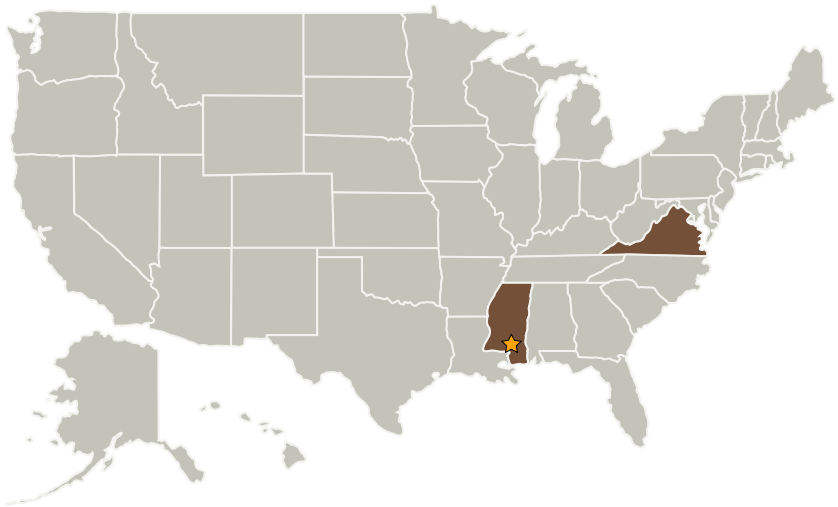
Software Defined RF Transceiver for Wireless Sensor Network, Phase I

Completed Technology Project (2006 - 2006)

Project Introduction

The concept of a smart device capable of communicating and making its own local decisions for wireless sensing, monitoring control, data acquisition, tracking, and identification has already been implemented and tested by military and commercial world in recent years. Methods for improving wireless transmission efficiency, data rate, power consumption, security, flexibility, scalability, and availability have also been proposed and some are implemented and tested. However, the usage trends for wireless sensors are changing from a single sensing purpose to a wide range of multipurpose services such as geo-location, first response, identification, security, and multimedia. This is making the limited quantity of radio frequency spectra a scarce resource (expensive) and is forcing an optimization shift to software programmable capability that provides control of a variety of modulation technologies for wideband or narrowband applications, emergency, and security functions. Mobitrum is proposing an innovative Software Defined RF Transceiver targeted for emerging wireless sensor with multiple capabilities from real-time data acquisition and monitoring to emergency response, geo-location via GPS, security, images, and RFID applications. The device will be designed to be low power, reliable, secure, high speed, low cost, and highly portable in a small self-contained form factor for easy plug-and-play.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi
Mobitrum Corporation	Supporting Organization	Industry	McLean, Virginia

Primary U.S. Work Locations	
Mississippi	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX02 Flight Computing and Avionics
  - TX02.2 Avionics Systems and Subsystems
    - TX02.2.6 Data Acquisition Systems